

chair.audio

_<: *International Faust
Conference (IFC-18)* :>_

Björn Kessler

Compiled on July 15, 2018

Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages



neudell

Bauhaus-Universität
Weimar

Who is chair.audio?

Team



Sebastian Stang

Computer scientist, embedded Linux, kernel extensions

Software, firmware & drivers



Max Neupert

Industrial designer, media artist

Design, strategy & media



Clemens Wegener

Musicologist, computer scientist, musician

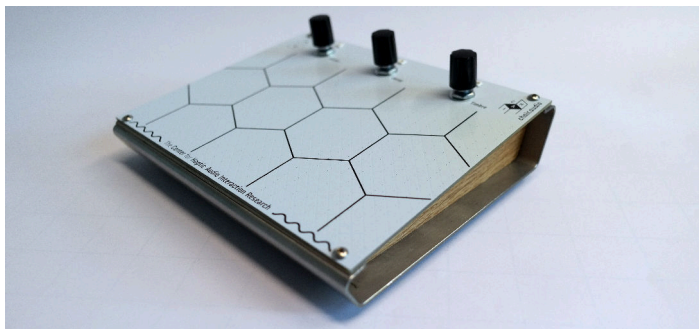
Research and development

Philipp Schmalfuß

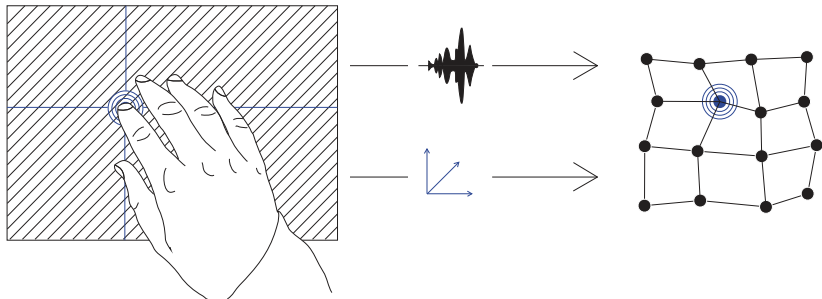
Application Development, Pure Data patches

Björn Kessler

Application Development



chair.audio is making digital instruments with analog interfaces. Our mission is to make sounds tangible. That's why we are developing instruments with haptic interfaces for electronic sound - both analog and software synthesis. Our Instruments have excitable surfaces that you can scratch, hit or bow.



Goals

- ▶ Intuitive quality of interaction (acoustic looking glass)
- ▶ Fine tactile control for making electronic sounds
- ▶ Wide range of possible timbres and mapping flexibility

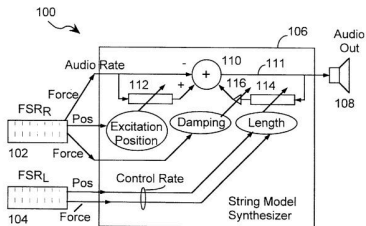


FIG. 3

Prior Art

Remutualizing the Instrument: Co-Design of Synthesis Algorithms and Controllers. By Perry R. Cook.

In: Proceedings of the Stockholm Music Acoustics Conference, August 6-9, 2003 (SMAC 03), Stockholm, Sweden

Cypress PSoC5 Firmware → Device driver → Pd external

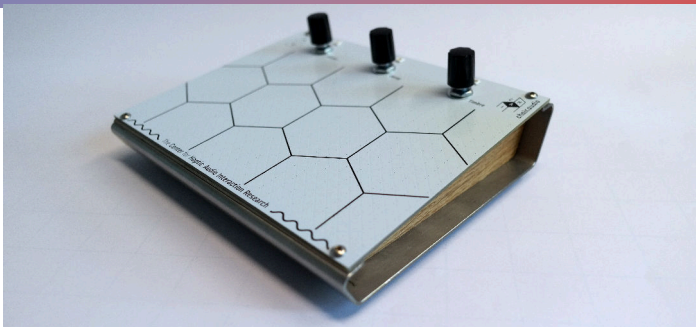
- ▶ libusb implementation
- ▶ Linux kernel module implementation (GPLv3)
- ▶ Pure Data external
- ▶ MacOS and Windows drivers (closed source)

Synthesis models currently implemented

- ▶ Frequency Modulation
- ▶ Filter banks
- ▶ Granular and concatenative synthesis (`timbreID`)
- ▶ Physical modeling (with `pmpd~`)
- ▶ Physical modeling (with Synth-a-modeler, SaM-Designer)
- ▶ Physical modeling (with Faust's `physmodels.lib`)

Synth-a-Modeler by Edgar Berdahl and the SaM-Designer by Peter Vasil have been forked to make compilation more straight forward and make use of recent versions of JUCE and Faust:
<https://github.com/chairaudio/SaM-Designer>

Faust's physical modeling synthesis is easily made usable for chair. The "excitation" part of the models is stripped off and replaced by the acoustic signal of the device. One or two parameters can be controlled through "After-Touch"



Timeline

- ▶ Starting now: Limited sale of pre-series instruments (~10 items)
- ▶ December: Crowdfunding for next generation multitouch model